REMARKS

Reconsideration of this application is respectfully requested.

U.S. Patent No. 6,247,389 to Samuels et al includes figure 2 identified as a typical rotary cutter (Column 2 lines 16). This rotor shown in figure 2 appears to be the Conair Corp rotor set forth in Samuels et al (Column 5 line 28). A Conair Corp type rotor was described in applicant's background of the invention. Conair Corp has been replacing rotors in Conair cutters with the rotor claimed by Applicants. Applicants rotors cost about $20,000 more per rotor than the rotor they replaced. The number of rotors replaced is substantial.

Applicants have manufactured their rotors with different diameters and different lengths to be used in cutters of Conair Corp and others. The dimensional information disclosed in this application, as filed, represents one specific rotor with a specific diameter and a specific length.

Samuels et al states that across the length of (cutter body) 17, (cutting edge) 20 may be parallel to (axis of rotation) 13, or may be helically disposed to (axis of rotation) 13, with essentially the entire length of (cutting edge) 20 being at a constant distance from (axis of rotation) 13 (column 4 line 23-27). With a helix angle of 0 to 3°, the cutting edge 20 can be considered to be a constant distance from the axis of rotation when cutting or sharing cold plastic material. However, when cutting hot plastic strands from an

extrusion die, a correction for the hour glass effect must be made to obtain an acceptable cut. The hour glass effect is the reduced distance between the axis of rotation and the center of a straight cutting edge relative to the ends of the cutting edge when both ends are at equal distance from the axis of rotation and there is a helix angle.

Conair Corp and others corrected for the hour glass effect by mounting a plurality of cutter blades on base supports in a common base support plane and shaping the cutting edges of each blade to obtain the desire cut. With this system, each blade clamped to one groove wall has a different arcuate cutting edge.

Claim 1 was rejected as an anticipated by Samuels et al. Applicants respectfully traverse the rejection. Claim 1 includes a first groove wall in a first wall plane extending from the left end to the right end, extending outward away from the axis and in the direction of rotation and wherein the first wall plane intersects the rotor axis. A plurality of first base support surfaces are each in a base support plane that is perpendicular to the first wall plane and all the base support planes that are perpendicular to the first groove wall intersect each other. Applicant's figure 9 is a schematic showing four base support surfaces in planes that intersect each other.

Samuels et al disclose one base support surface in each groove that is perpendicular to a single groove wall. There are two groove walls that are located 180° apart that include parallel lines as shown in figure 5B. With a helix

angle the wall planes including any two wall plane lines that are 180° apart will cross each other. Base support planes that are perpendicular to the two wall planes as disclosed by Samuels et al, are parallel to each other.

Figure 5B of Samuels et al shows a ring member with a plurality of grooves. The ring member is mounted on a shaft. It has been suggested that multiple ring members could be mounted on the shaft. When there is a helix angle, the angle of the wall surface relative to a radius line is different at every location along the rotor axis. If two of the rings are identical, the wall surfaces at adjacent ends of the rings will also be at different angles and therefore in different planes.

Claim 1 includes multiple base support planes that are perpendicular to a first groove wall and intersect each other. Claim 1 also includes one wall plane that positions multiple blades. Neither of these features are shown or suggested Samuels et al. Claim 1 is therefore allowable.

Claims 2-5 are dependent upon Claim 1 and are allowable together with Claim 1 for reasons set forth above.

Claim 7 was rejected as anticipated by Samuels et al. Applicants respectfully traverse the rejection. Claim 7 includes at least one groove with a first groove wall in a first wall plane and a second groove wall in a second wall plane. The first wall plane and the second wall plane are offset from each other about the rotor axis. Both the first and second wall planes are in combination with and include the structure set forth in Claim 1. Claim 7 therefore

distinguishes over Samuels et al and is allowable for reasons set forth above.

Claims 8-10 are dependent upon Claim 7 and are allowable together with Claim 7 for reasons set forth above.

Claim 11 was rejected on the ground that Samuels et al disclose all eliminates set forth and inherently disclosed the method steps. Applicant respectfully traverses the rejection.

Claim 11 includes machining a first groove wall in a first wall plane extending from the left cylinder end wall to the right cylinder end wall, extending outward away from the rotor axis, and wherein the first wall plane intersects the rotor axis, machining a plurality of first base support surfaces in each groove that are each in a plurality of first base support planes that are perpendicular to the first wall plane and wherein the first base support planes intersect each other.

Samuels et al disclose a base support surface in each groove that is in a single plane. He states that essentially the entire length of the cutting edge 20 is a constant distance from the axis 13 and helically disposed (column 4 lines 23-27). The end of the base support surface shown in the cross section of figure 3, that are 180° apart are essentially parallel to each other. However, both base support planes would be parallel as disclosed by Samuels et al. Samuels et al discloses only one base support plane in each groove that is perpendicular to a first groove wall. The rotor appears to have two base support planes that are 180°

apart and perpendicular to the first wall plane in two grooves. However, these planes are parallel as described.

Samuels et al does not disclose a rotor groove with a first groove wall in a first groove wall plane and two base support surfaces in base support planes that are perpendicular to the first wall plane and intersect each other as set forth in applicant's Claim 11. Claim 11 therefore distinguishes over Samuels et al and is allowable.

Claim 12 was rejected as anticipated by Samuels et al. Applicant respectfully traverse a rejection.

Claim 12 includes a first groove wall in a first wall plane extending axially from the left end to the right end and extending outward away from the rotor axis and in the direction of rotation. A plurality of first base support surfaces that are perpendicular to the first wall plane and in base support planes that are perpendicular to the first groove wall and intersects each other are also included. Claim 12 further includes a plurality of flat cutter blades each of which has a base that is parallel to a cutting edge and wherein the base of each is seated on one of the first base support surfaces and the first cutter blades are clamped to the first groove wall. Samuels et al does not disclose any base support planes that are perpendicular to a first wall plane and intersects each other. Samuels et al does not disclose multiple blades connected to each groove wall. In view of the above Claim 12 clearly distinguishes over Samuels et al and is allowable.

Claims 13-15 are dependent upon Claim 12 and are

allowable together with Claim 12 for reasons set forth above.

The Samuels et al application is directed to a rotary cutter without a helix angle. The advantages of a helix angle are mentioned in passing in the specification. A helix angle introduces a number of problems none of which are addressed by Samuels et al. It is stated for example that the cutting edge 20 may be helically displaced to the axis of rotation 13 with essentially the entire length of the cutting edge 20 being at a constant distance from the axis of rotation. In fact, the straight cutting edge 20 is not at a constant distance from the axis of rotation of the rotor due to the hour glass effect. The hour glass effect is a result of the helix angle. Samuels et al does not even acknowledge that the hour glass effect exists. With a relatively small helix angle and a short blade length the hour glass effect can be ignored to some extent. When cutting plastics that are cold and are thicker than a few mills, the hour glass effect can be relatively large. When cutting hot plastic from an extruder, the hour glass effect must be relatively small to obtain satisfactory cuts.

The change in the angle of a groove wall relative to a radius of a rotor from one end of the rotor to the other end is a characteristic of a first groove wall with a helix angle. By claiming the structure that creates the changing angle, applicants are claiming the changing angle.

A generally rectangular blade that is clamped to a groove wall with a helix angle as claimed also has a changing height in a radial direction from one blade end to another.

Applicant's procedure for correcting the hour glass effect also corrects for the change of the radial height of the blade. This change and the radial height of a flat blade in a plane that intersects the rotor axis at an acute angle was not mentioned in the specification. However, the change occurs due to the helix angle. It is a fact of geometry. It may be a fact that is not obvious to the person with ordinary skill in the art.

In view of the above this application as amended is in condition for allowance. Reconsideration in allowance is therefore requested.

The Patent Office is authorized to charge or refund any fee deficiency or excess to Deposit Account No. 50-0852.

Respectfully submitted,

William R. Voight

By his attorney,

Robert L Farris

Registration No. 25,112
Robert L. Farris
5291 Colony Drive North
Saginaw, Michigan 48603
989-799-5300

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